G. R. S. IX-5]

*Previous references.*
74 23-15 Sls 1-3
94-14 Sls 1-2
51-14 Sls 16
94-14 Sls 3-11 (~~1276~~)
*Later references.*

1916

File No. 34-16

Serial Nos. 1-6

# GENERAL AND REVENUE SECRETARIAT.

---

*Serial Nos.* 1-6

**Part B for** Oct 17.

---

SUBJECT.

Report of Mr. Krishna Murty Naidu on the Antiseptic treatment of Timber.

---

Sl 6 G.o no R 3646 Dt 5.10.17. To the Conservator of Forests. Records The correspondence from the Conservator of Forests, reporting on the results of the antiseptic treatment of Railway Sleepers prepared out of Inferior Timber

10.11.17

W. D. 68—GPB—50,000—24-7-16

1916.

GENERAL AND REVENUE SECRETARIAT.

( 7L— )

NOTES.

File No 34-L

FILE HEADING

Report on the Antiseptic treatment of timber.

From

The Conservator of Forests

No. 920 Dated 28-7-16 Received 29-7-16

| Diary No. 804 | Enclos 1 | Spare Copies — | Serial No. 1 |
|---|---|---|---|

BRIEF ABSTRACT OF LETTER.

Submits Mr Krishnamurthi naidu's report on the experimental treatment of certain inferior timbers and states that for want of creosote oil the experiments could not be conducted to the extent contemplated & that Mr B.V. Ramiengar has been asked to conduct the experiments with tar waste.

NOTES AND ORDERS.

Subs The average cost per sleeper treated is Rs 2-1-3.24 is stated that the cost would have gone down by 50 % if the experiment had been undertaken on a large scale. The sale prices of teak wood metre gauge sleeper is fixed.

NOTES—First Sheet.

General and Revenue Secretariat.

File No. Ft 34 of 1916.

Seria No.

Rs 3-4-0 per sleeper.

(The 1st member has asked for the early issue of the report).

mg 1-8-16. 2) 1st Member ) Mr Ramachandra 2/8.

47 2.8

S 1/8/16

Exp. incurred in the Kurnool Circle not reported. Nil. Is this information?

Ref 3/8

For 3-8

4. Draft Subs.

paras 9, 10 & 11 of mr dsm 3/8

G. Krishnamurthi naidu's report gives an account. But it does not say whether the value of timber is included or not. The cost of the tank is also not furnished.

mg 4-8-16. 1st Member ) Issue Mon 5/8/16

S 5/8/16

Gen

To Revenue Secretary to Government

Requests further information on account of the cost of the improvements.

NOTE—Contn. sheet

General and Revenue Secretariat.

File No. 1-4 of 1916.

Serial No. 3

From the Conservator of Forests No. 929 of 31.7.17

states that the cost of ~~creosote~~ treatment of sleepers with creosote comes to ~~Rs~~ Rs 0-12-10, as against 0-11-6 at Hardoi & that treatment with kyanisation, reduced to Rs 0-10-0 and that if the durability of the sleepers which have been used for the first test is long, sleepers of local manufacture on a larger scale is issued at Rs 2-12-0 each

to Subs with reference to a previous Memo.

11.8.17

If the forest is intended as the trial of such sleepers on the railway line ~~Scheme~~ [illegible] in question.

2. It will be best to prepare such sleepers at Sell for railway as [illegible]

3. Further the rate claimed only shows the cost of sleepers for 1 mile. & not [illegible] for them

[illegible]

D.C.F.

NOTE—Contn. sheet

GPL—70 000—17 12 15

WD 1233—GPB—60 000—1 12-16—S.

1803

General and Revenue Secretariat.

File No. H 3 4 of 1916

| Serial No. | |
|---|---|
| 10 | Draft Subs<br>My 15-8-17<br>SS 15.8.17<br>I/ Issue Mss 15/8 |
| 4 | To.<br>The Honble Sir H<br>No. R 1882 dt 20-8-17<br>Enquires whether it is not better to prepare on a commercial scale such sleepers & sell them on profit and why the Ry Dept should not pay for the sleepers supplied. |
| 5 | From The Honble Sir H<br>No. 2349 dt 13 9-17<br>States that for want of creosote preparation cannot be undertaken on a commercial scale, that no railway company [illegible] sleepers unless their durability is certified & that it would be inadvisable to ask for payment of sleepers from the Ry Construction Dept when it has undertaken to test their durability. |
| | I/ Subs with reference to the 2nd member's orders on the proposal p/ Mss 17.9.17 2nd Member Mss 17.9.17 |
| | SS 17.9.17 |

NOTE—Contn. sheet

123/2297

1803

WD 1233–GPL–6( C00—1 12-16—S

General and Revenue Secretariat. File No. 34 of 1916. 5

Serial No. 3 Recorded

Returns the supply of sleepers to be made in payment

4

2nd Cn

14 Draft Sor 24.9

15) Draft subd. 25.9.17

16) Rev Secy) 25.9.17

Sor 25.9.17

303 27.9.17

17) 2nd member & Dewan) 30.9

Dz 26.9.17.

Sor 26.9

18) The necessity of the Dewan

19) The file was marked to the Dewan also, as the draft order proposed to prohibit the supply of sleepers to the Railway Deptt, free of cost in future. May this be subd accordingly, or the draft issue -

Dz 1.10.17. Sor 1.10

30 1.10.17

20) 2nd member) This is a proper official who needs the Dewan's

4/10

4 Issue

Dz 2.10.17

Sor 2.10

P S. III-2

General and Revenue Secretariat.

File No. 34 of 1916. 6

| Serial No. | |
|---|---|
| 6 | To the Conservator No. 20. 3646 B 5.10.17<br>Records 81.5 directs that in future the supply of sleepers to railways should be made in England |

NOTE—Contn. sheet.

ev. Forests

OFFICE OF THE CONSERVATOR OF FORESTS IN MYSORE

No. 920

*Bangalore, dated* 28th July 1916.

Enclosures

Diary no. 804.
X-34-16
SA-1.

From

[illegible],

*Conservator of Forests in Mysore.*

To

[illegible] Esq.,

*Secretary to the Government of*
*H. H the Maharaja of Mysore,*
~~*General and*~~ *Revenue Departments.*

Sir,

[illegible]

WD 0071 GLD—600 25 2 16

casks of this material could be made available at a cost of Rs. 20/- per cask. As Mr. Krishnamurthi Naidu has already left India, I have requested Mr. B. V. Ramaiengar B. A., District Forest Officer, Shimoga, to undertake the experiments with the aid of the tar waste. The conclusions arrived at by him will be communicated to Government in due course.

The Sleepers already treated will be placed at the disposal of the State Railway Construction Department for being used on the open lines of Railway to ascertain their durability as compared with Teak Sleepers.

I have the honour to be,

Sir,

Your most obedient servant,

Conservator of Forests.

FOREST DEP

From

*The Conservator of Forests*
*in Mysore*

To

*The Secretary to the Government*
*of H. H the Maharaja of Mysore,*
*General and Revenue Departments.*

No.

Dated

Despatched

Enclosures

Subject.

Report on the antiseptic treatment of jungle-wood sleepers in Shimoga District, by Mr. G. Krishnamurthi Naidu, Assistant Conservator of Forests, on special duty -

After a careful exploration of the Ghat forests in Shimoga and Kadur Districts and by rough calculation - these forests were found to contain a very large quantity of jungle timber trees. The estimated quantities are reported in the Ghat reports. As the extracting and - utilizing of the small quantity of superior timbers only sparsely distributed throughout these forests would not be profitable after spending large sums on Forest roads etc. and without working the inferior timbers which form the bulk of the Forests, it was recommended that some of these inferior ones may be tried for sleepers after treating with antiseptics. The proposal as well received by the Government and the estimated sum of Rs.4500/- was - sanctioned for conducting the experiments on the same - lines as pursued by the Forest Departments of North - Western Provinces, Assam and Burmah, under open tank system and with the same antiseptics, viz. Liquid Fuel oil and - Creosote Green oil used by the Forest Department in - Northern India in the case of Chir pine sleepers.

It was intended to prepare 100 sleepers in each kind, 75 for being treated and 25 to be used on on the line untreated in order to determine their relative - longevity of life.

Accordingly, an order was placed with the - Superintendent of P. W. D. Workshop, Bangalore, to - construct an iron tank and a cradle with other appliances to suit in dimensions, the requirements of 5ft-6 gauge sleepers. Though the order was placed in the

month of December 1915, the same was not ready till about the middle of March for want of iron sheets etc. due to war. The appliances were received in Shimoga on 10-4-1916.

A temporary fire place for the staff was constructed on the same plan as that constructed in Karwar. The following kinds of sleepers were got ready in the same time:-

| | | | No. of sleepers |
|---|---|---|---|
| Sleeper species. | 1. | Dhupa - Dipterocarpus indicus. | 79 (-2) |
| | 2. | Dhagi - Terminalia indica | 60. |
| | 3. | Hulasale - Anisoptera elliptica | 108. |
| | 4. | Holemavu - Machilelus macranthus | 108 |
| | 5. | Honne - Calophyllum Inophyllum | 33 |
| | 6. | Kokum - Garcinia Indica | 60 |
| | 7. | Jadgirige - Lagerstroemia Spp. | 24 |
| | 8. | Surahonne - Calophyllum Inophyllum | 15 |
| Deciduous - timber forest species. | 9. | Terr - Terminalia bellerica | 100 |
| | 10. | Kalmalli - Odina Wodier | 35 |
| | 11. | Nerle - Eugenia Jambolana | 48 |
| | 12. | Coon - Strychnos nuxvomica | 76 |
| | 13. | Kaledri - Sterculia urens | 30 |
| | 14. | Thi - Terminalia tomentosa | 8 |
| | | | 671 -(-2) 669 |

Among these species, it was also intended to treat Xerophila and Hotmola sleepers, but on further investigation work had to be stopped when there was no chance of getting the required quantity of creosote oil. The woods of these species are selected with due consideration to their weight per cubic foot, their seasoning qualities, their transverse strength and their adaptability to bear the running weights, save in the case of one or two species like Garcinia indica and Lagerstroemia Lanceolata.

Though care is taken to select mostly well seasoned fallen trees for sleepers in the case of such species, in order to secure all seasoned sleepers, the supply could not be completed in time for want of timely supply of creosote oil. Steps were taken to have the supply of creosote oil promptly but on account of delay in supply this oil was only distributed on the 3rd week of March. Hence the experiment had to be confined to the extent this oil was available, i. e., 38 gallons and only the

been obtained by the Conservator of Forests before the outbreak of war for some other experimental purposes. 601 gallons of Liquid Fuel oil were purchased from Messrs Ebr & Co at a cost of Rs. 216-15-0 i, e., at Rs. 0-5-8 per gallon. Liquid Fuel oil is calculated to weigh 8 lbs per gallon and the creosote oil, 11 lbs per gallon. These two oils were mixed in the proportion of 9 to 7 in the ratio determined by the Imperial Economist, Mr. Pearson. For 88 gallons of creosote, 113 gallons of Liquid Fuel oil were added so that the total mixed oil available for the experiment was 201 gallons.

The capacity of the treating tank was for 2 - sleepers. However, on account of the so small quantity of the oil, only 1 sleepers had to be treated at a time and for sometimes, only for as the quantity of oil in the tank lessened itself.

For a view to ascertain the period of immersion required to secure the absorption of minimum amount of oil, sleepers were ~~kept~~ immersed for different periods varying from 12 to 24 hours. As there was no absorption in the quantity observed at a temperature of 80 oC, later on, the period of immersion was only 12 hours.

The following statement gives the details of - sleepers treated and other particulars:-

As will be seen from the above statement only 182 sleepers viz. Dhuma 36, Gulmarg 18, Merlu 22, Koyghole 16, Jagarigoe 22, Farchonne 9, Nalgal gi 30, are the best while the mixture was in the proportion above stated. The remaining 182 sleepers of the above statement have been treated after adding another 36 gallons of Liquid Fuel oil to the mixture that remained in the tank. After a spell of some time, these last mentioned sleepers were found to lose much of their earlier solidity and weight, which must be due to the absence of the required quantity of creosote oil in the mixture and the consequent easier evaporation of the Liquid Fuel oil. Hence it is necessary that these sleepers should be treated again to obtain reliable data.

The treated sleepers have been serially numbered with chisel cut marks and the following conventional letters as:-

| | | | | | |
|---|---|---|---|---|---|
| 1. | Dhuma | D. | 6. | Farchonne | F.C. |
| 2. | Gulmarg | G. | 7. | Nalgal | N. |
| 3. | Merlu | M.R. | 8. | Koyghole | K.H. |
| 4. | Koyghole | K.H. | 9. | Thane | T. |
| 5. | Jagarigoe | J.G. | | | |

From the foregoing statement it may be seen that the average absorption of the oil per sleeper does not vary much in the case of each species, and the quantity absorbed depends upon the hardness or weight of the sleeper cubic foot, and the seasoned condition of the timber. From the cross section taken it may be seen that in case the Liquid Fuel oil was worked mostly into the tissues of the wood, while the creosote oil penetrated only to a very little depth & formed more a surface coating to prevent the Liquid fuel oil from evaporating & escaping from the body of the wood readily. This is borne by the fact that some of the latter treated sleepers i, e., with more Liquid fuel oil, began to lose their weight very soon after exposure. The

this reason, to secure the maximum and effective impregnation of the wood under open tank system, it may be advantageous to treat the sleepers in Liquid Fuel oil first and afterwards with the creosote oil. A few at least may be tried like this and the result compared. For these reasons, I consider that the waste Tar product obtained in our Oil Gas Factories in Bangalore, may prove itself a useful substitute for the creosote Green oil. Further it may even be possible to treat the sleepers effectively in a mixture of Liquid Fuel oil and this waste tar product. All that may be required may be to determine the proportion in which the two have to be mixed, so that the mixture may be of such density as to ensure its penetration into the tissue of the wood. For this purpose, the Executive Engineer of Bangalore and the Director of the Agricultural have been requested by the Conservator of Forests to supply 8 casks of waste Tar. If the same is secured, further experiments may be conducted in next summer, by which time the sleepers now on hand will be well seasoned and be fit for treatment.

The following statement gives the average cost of untreated sleepers at Shimoga:-

| Name of Forest. | No. of sleepers. | Total cost | Average per Sleeper. | Remarks. |
|---|---|---|---|---|
| Agumbe | 458 | 675-14- 0 | 1- 7- 7 | This can be considerably reduced if the sleepers are seasoned on site in the forest |
| Sagarsail | 372 | 486-10- 0 | 1- 4-11 | |
| Shimoga Depot | 99 | 64- 7- 8 | 0-10- 5 | |
| Total | 929 | 1236-15- 8 | 1- 5- 3 | average per sleeper. |

The following is the brief abstract of expenditure in connection with the above experiments :-

| | | Rs- | As. | P. |
|---|---|---|---|---|
| 1. | Sleeper preparation and carting charges | 1286- | 15- | 8 |
| 2. | Liquid Fuel oil (Deposit of Rs238-8-0 for drums deducted) | 216- | 15- | 0 |
| 3. | Treating tank etc. (not furnished by the Superintendent of the Workshop) | | | |
| 4. | Railway freight on do | 21- | 11- | 0 |
| 5. | Construction of zinc shed and fire place | 53- | 6- | 3 |
| 6. | Purchase of sundry articles, iron pots etc | 10- | 0- | 0 |
| 7. | Cost of one centigrade Thermometer | 4- | 5- | 0 |
| 8. | Cost of coolies employed for treating the sleepers ... ... | 46- | 0- | 0 |
| 9. | Cost of chisling letters and numbers | 5- | 11- | 8 |
| 10. | Cost of one telegram ... | 0- | 15- | 0 |
| | Total Rs. | 1585- | 15- | 7 |

However the following may be taken as the actual cost for 275 treated sleepers :-

| | | Rs. | As. | P. |
|---|---|---|---|---|
| 1. | Average cost of 275 sleepers | 363- | 12- | 10 |
| 2. | Cost of 148 gallons liquid fuel oil | 57- | 6- | 10 |
| 3. | Cost of 88 gallons of creosote oil at Re. 1-2-0 per gallon ... | 99- | 0- | 0 |
| 4. | Treating charges ... | 46- | 0- | 0 |
| 5. | Chiselling numbers etc. ... | 5- | 11- | 8 |
| | Total cost for 275 sleepers Rs. | 571- | 5- | 7 |
| | Average cost per sleeper Rs. | 2- | 1- | 7 |

If the maximum number of sleepers i. e., 60 at a time had been treated, it would have reduced the treating charges considerably i. e., to less than even half the amount. - Further 4 pies per sleeper have been spent for chiselling - numbers and letters, this can be dispensed with in the case of ordinary wooden sleepers.

The untreated Ghat wood sleepers which were on hand and were in fine dimensions of 12' x 8" x 4½" and 18' x 8" x 4½" have been sold away by auction at an average profit of 8 annas per cubic foot.

(Sd) G. Krishnamurthi Naidu,
Assistant Conservator of Forests,
on Special Duty.

B a n g a l o r e.
Dated 14-6-1916.

" C O P Y "

Conservator of Forests.

Antiseptic treatment timber

S. 26] 116

File No. 34-

Serial No. 2

*Diary No. of letter replied to* 804

No. 2170

General and Revenue Secretariat

( Pt )

*the* *191* .

To

The Conservator of Forests.

Sir,

Date of issue.....

Signed by.....

With reference to your letter No. 920 dt 28-7-16 submitting ~~the~~ Mr. Krishnamurthi Naidu's report on ~~the~~ ~~Expts~~ connected with the antiseptic treatment of timber, I am directed to request you kindly to furnish information as to the actual cost of the experiments, together ~~with~~ including the value of timber used.

over.

---

SUBJECT.

treated.

furnished with the report

is incomplete.

Name etc

Mar
5/8/16

Rev. Secy to Govt

mz
4-8-16.

5/8/16

*Copied by*

*Examined by*

GPB—20,000—10-10-4

Rev. Forests

OFFICE OF THE CONSERVATOR OF FORESTS IN MYSORE,

No. 929 [illegible] *Bangalore, dated* 31st July *1917.*

Enclosures

From

M.G. Rama Rao, Esquire, B.A.,

~~RAI BAHADUR M. MUTHANNA, Esq.,~~

*Conservator of Forests in Mysore.*

To

..... B. Ramaswamaiya ... Esq., B.A., B.L.,

*Secretary to the Government of*
*H. H. the Maharaja of Mysore,*
*General and Revenue Departments.*

SIR,

With reference to your letter No.1750 dated the 9th. August last, I have the honour to state that in all 1676 cfs. of South timber consisting of fourteen kinds of that species as enumerated in Mr. G. Krishnamurthi Naidu's report, submitted to Government with my letter No.930 dated 28th. July 1916 were utilized for the preparation of 928 metre guage sleepers. Of these, 153 sleepers were fully treated under the open tank system with a mixture of creosote and liquid fuel oil and 163 more were partially treated for want of creosote which was neither available anywhere in India nor procurable from England on account of the war.

The following are the details of cost incurred for the treatment of these 275 sleepers:-

| | | Rs. | as. | P. |
|---|---|---|---|---|
| (1) | 147 gallons of liquid fuel | 57- | 4- | 0. |
| (2) | 80 gallons of creosote | 90- | 0- | 0. |
| (3) | 4 tons of fuel | 80- | 0- | 0. |
| (4) | Treating charges. | 48- | 0- | 0. |

GPB- 1,000—22-8-11

The average cost of treatment per sleeper amounts to Rs. 0-12-10 against 11 as. incurred at Hardwar for treating similar sleepers. Though the capacity of our treating cradle was 20 sleepers at a feed, we were not able to treat more than 6 sleepers at a time, owing to the difficulty of filling the tank completely due, as stated before, to the shortage of creosote. The cost would have been the same or even less than that of @ Hardwar but for this difficulty which was unsurmountable.

As suggested by Mr. Krishnamurti Naidu in his report already referred to, another set of 138 sleepers were treated with a mixture of tarwaste and liquid fuel oil, but the treatment cannot be said to be satisfactory since the penetration of the oil into the wood does not exceed one-third of an inch on account of the density of the tarwaste.

The cost of ~~collection~~ treatment was as detailed below:-

| | | Rs as p |
|---|---|---|
| (1) | 80 gallons of tarwaste | 46-12-0 |
| (2) | 103 gallons of liquid fuel | 37- 0-3 |
| (3) | 3 tons of fuel | 10- 0-0 |
| (4) | Treating charges. | 25- 4-0. |
| | Total | 119- 0-3. |
| | Deduct the cost of half of the mixture still remaining in the tank. | 23- 8-0. |
| | Net cost. | 95- 8-3. |

The cost per sleeper therefore amounted to Rs. 0-10-10. It may not however exceed 10 as per sleeper, if the treatment is undertaken on a large scale.

The treated sleepers have all been issued free of cost to the Railway Construction Department for laying out on the open lines of railway and testing as to their durability and the result is being watched with interest. Should it prove encouraging, the treatment can be undertaken on a large scale

scale/treated Metre Guage sleepers placed on the market at a cost not exceeding Rs. 2-12-0 per sleeper as per details noted below:-

| | |
|---|---|
| (1) Seigniorage | 0-8-0. |
| (2) Preparation and delivery of sleepers in Shimoga per sleeper. | 1-8-0. |
| (3) Treating charges. | 0-11-0. |
| | 2-11-0. |

The untreated sleepers 517 in number in stock in the Shimoga depot will be disposed of to the best advantage of Government, as no further experiments can be conducted for want of creosote.

I have the honour to be,

Sir,

Your most obedient servant

Conservator of Forests.

Y.V.R.

FOREST.

From

*The Conservator of Forests*
*in Mysore.*

To

*The Secretary to the Government*
*of H. H. the Maharaja of Mysore,*
*General and Revenue Departments.*

No.

Dated

Despatched

Enclosures.

---

SUBJECT.

G. R. S. V1—G/32]

SUBJECT Antiseptic treatment of timber

W.C

W.C

Diary No. of letter replied to .. 701

16

H Section

File No. 34-16

Serial No. 4

GENERAL AND REVENUE SECRETARIAT

( H )

the · 191 .

No. R. 1882

Date of issue. 20/8/17

Issued by Rameshwara Rao.

To - The Conservator of Forests

Sir,

With reference to your letter No. 929 Dt 31-7-17 regarding the antiseptic treatment of railway sleepers ~~antiseptic~~ and their disposal ~~thereof~~, I am directed to state that the preparation of such sleepers on a commercial scale will for a time be delayed if the result now being carried by the Ry Depts of the experiment ~~their durability~~ is to be awarded over.

on its open lines

of the sleepers now laid on the open lines

am accordingly
and to enquire whether it would
be not better to purchase Railway
sleepers and sell them to
private ways on profit. —
also
2. ~~I~~ I am to enquire
why the sleepers, have been
subjected to antiseptic treatment
before
issued free to the Ry Deptt
& why it should not be
requested to pay for them

I have etc
Mon
15/8/17
for Hon. Secretary

15/8/17

*Copied by*

*Examined by* 15/8/17

W Dst GPL 60 000 15 11 16

S 19-7

REV. SECRETARIAT I REVENUE. 15 SEP 1917

Office of the Conservator of Forests in Mysore,

No. 2349 Dated Bangalore, 13th September 1917.

1917

18 Dec 1803

From

M.G. Rama Rao, Esquire, B.A.,
Conservator of Forests in Mysore.

To

B. Ramaswamaiya, Esquire, B.A.,B.L.,
Offg. Secretary to the Government of
His Highness the Maharaja of Mysore,
Revenue Department,
B a n g a l o r e.

Sir,

With reference to your letter No.R.1882/Ft.34-16-4 dated the 20th. August 1917, I have the honour to state that for want of creosote which is not procurable anywhere in India, antiseptic treatment of junglewood sleepers cannot be undertaken on a commercial scale as desired by Government and further, no Railway Company would come forward to buy them, unless their durability was tested and well reported upon. The Railway construction Department very kindly undertook to test the treated sleepers for us. The obligation being thus on its part, it would be iniquitous to require it to pay for the sleepers.

I have the honour to be,
Sir,
Your most obedient servant,

Conservator of Forests.

Antiseptic treatment Sleepers.

19 H File No. 34-16
Serial No. 6.

*Diary No. of letter replied to* 1803

*Proceedings of the Government of His Highness the Maharaja of Mysore*

GENERAL AND REVENUE SECRETARIAT.
( H )

, *the* 191

READ—

Correspondence ending with letter No. 2349 dt 13-9-17 from the Conservator of Forests reporting on the results of the antiseptic treatment of ~~inferior timber~~ railway Sleepers prepared out of inferior timbers and stating that the Sleepers have been issued free to the Ry. Dept for testing their durability ~~of~~ over

Date of issue 5-10-17

Signed by Ramachandra Rao

~~ORDER THEREON.—No.~~

SUBJECT.

GPB—50,000—1-12-12

undertaking
to [illegible] undertake
preparation of Sleepers on a large scale, it
that the cost of the treated sleepers
inclusive of Seigniorage comes
to Rs 2-11-0 each -

order - R. 3646 dt 5-10-17

1. Recorded -

2. In future the supply of
such sleepers to Railways
should be made on payment.

26-9-17.
Rev. Secretary.

26-9-17

To.

The Conservator of Forests in Mysore

25-9-17

25/9